

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



Rec'd PCT/PTO 20 SEP 2005



10/549928

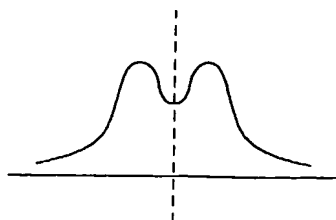
(10) International Publication Number  
WO 2004/083133 A3

(43) International Publication Date  
30 September 2004 (30.09.2004)

PCT

- (51) International Patent Classification: C03B 33/02, B23K 26/06
- (21) International Application Number: PCT/KR2004/000592
- (22) International Filing Date: 18 March 2004 (18.03.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
10-2003-0017901 21 March 2003 (21.03.2003) KR  
10-2003-0017902 21 March 2003 (21.03.2003) KR  
10-2003-0078797 7 November 2003 (07.11.2003) KR
- (71) Applicant (for all designated States except US): RORZE SYSTEMS CORPORATION [KR/KR]; 720, Korim-dong, Yongin-shi, Kyunggi-do 449-923 (KR).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): YOU, Ki-Yong [KR/KR]; 109-1504, Dongsuwon LG Village, 686 Mangpo-dong, Paldal-gu, Suwon-shi, Kyunggi-do 442-706 (KR). KIM, Choon-Taek [KR/KR]; 1/305, Poonglim Apt, 498 Wooman 1-dong, Paldal-gu, Suwon-shi, Kyunggi-do 442-819 (KR). AN, Min-Young [KR/KR]; 605-1205, Samcheonjugong Apt., Samcheondong 1-ga, Wansan-gu, Jeonju-shi, Jeonrabuk-do 560-784 (KR). KIM, Mj-Jee [KR/KR]; 205, 275-1 Gugal-ri, Kiheung-eup, Yongin-shi, Kyunggi-do 449-903 (KR).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:  
— with international search report
- (88) Date of publication of the international search report: 16 December 2004
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: APPARATUS FOR CUTTING GLASS PLATE



(57) Abstract: Disclosed herein is an apparatus for cutting a glass plate. The apparatus comprises a cracking means for forming a minute crack at a point on the glass plate where the cutting is started, at least one scribing means using a laser beam absorbed by the glass plate, at least one quenching means using a quenching fluid after irradiation of the laser beam, a breaking means using the laser beam. The breaking means comprises a laser oscillator, a reflection mirror and a focusing lens. The focusing lens has at least two or more focal lengths. The apparatus may further comprise a photo mask formed with light transmission openings for transmitting a part of the laser beam to be irradiated on the glass plate instead of the focusing lens. With the apparatus of the present invention, the problems caused by the conventional lens, such as a reduced straightness of a cutting

line or a rough cutting plane, can be prevented, thereby providing a clean cutting plane.

WO 2004/083133 A3

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/KR 2004/000592

## A. CLASSIFICATION OF SUBJECT MATTER

C03B 33/02; B23K 26/06

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
C03B, B23K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
WPI, EPODOC, PAJ.

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0062484 A (CREATIVE GLASSWORKS INTERNATIONAL) 13 October 1982 (13.10.1982) <i>fig. 2,3; page 14, lines 9-33.</i>	1,5
	---	
A	JP 63 016893 A (KOMATSU LTD) 23 January 1988 (23.01.1988) <i>abstract; fig.</i>	1
	---	
A	US 3777280 (Pohl) 4 December 1973 (04.12.1973) <i>claims 1-7; fig. 1.</i>	1-4
	---	

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&amp;" document member of the same patent family

Date of the actual completion of the international search  
17 May 2004 (17.05.2004)Date of mailing of the international search report  
30 August 2004 (30.08.2004)Name and mailing address of the ISA/ AT  
**Austrian Patent Office**  
Dresdner Straße 87, A-1200 ViennaAuthorized officer  
HAUSWIRTH F.

Facsimile No. +43 / 1 / 534 24 / 535

Telephone No. +43 / 1 / 534 24 / 136

**INTERNATIONAL SEARCH REPORT**  
Information on patent family members

International application No.  
**PCT/KR 2004/000592**

Patent document cited in search report			Publication date	Patent family member(s)	Publication date
EP	A	062484		none	
JP	A	63016893 A2		none	
US	A	3777280	1973-12-04	none	